

531-14.

Suggested Designs for **Concrete Milk Cooling Houses**

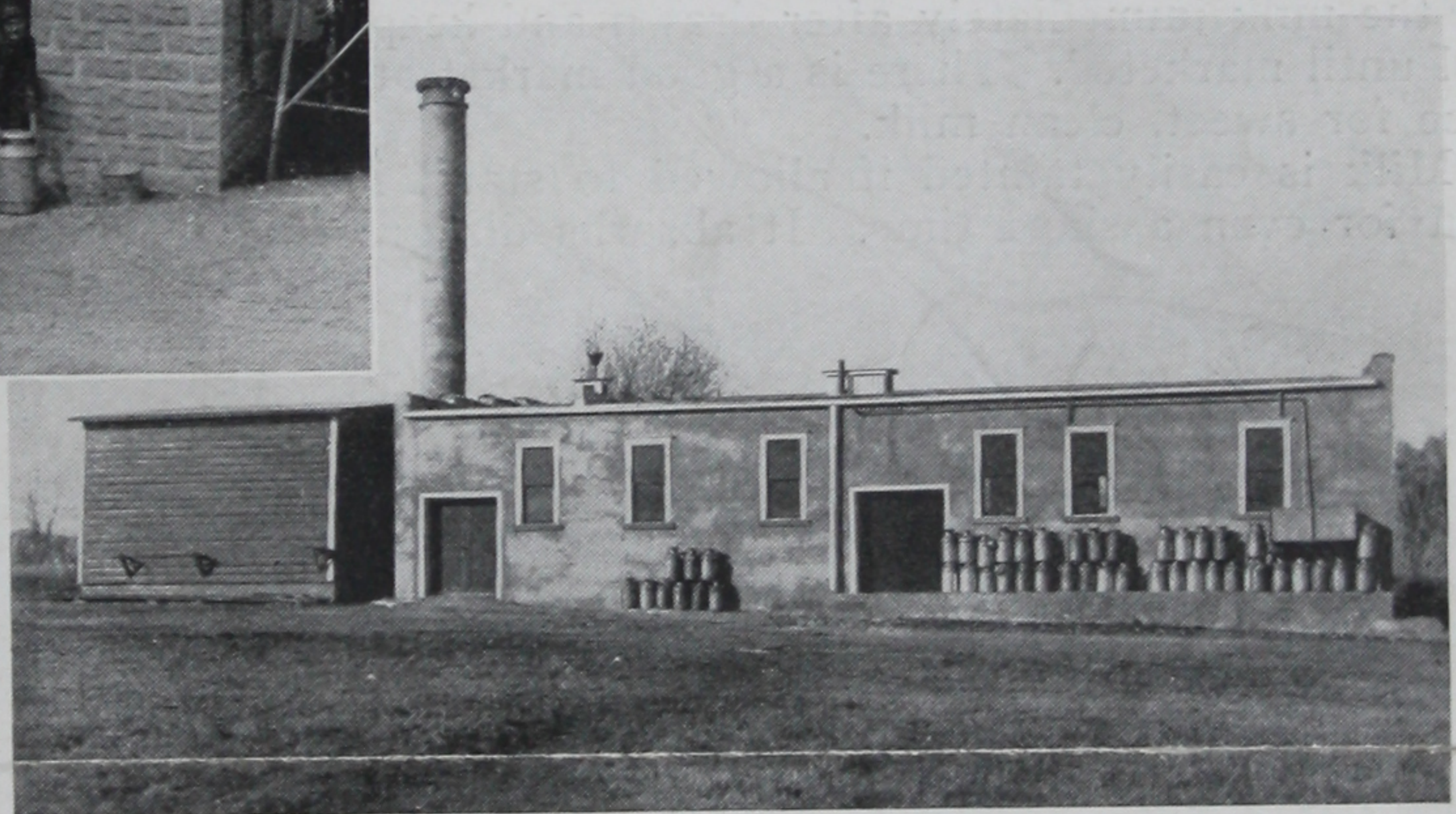
*Is There One of These Food Conservation Buildings
On Your Farm?*

Milk is Food—Prevent Waste by Proper Care and Handling Until Marketed



Milk cooled and kept in a
concrete milkhouse until
ready to market

reaches the creamery clean
and sweet, ready for the
best market price



Published by

PORTLAND CEMENT ASSOCIATION

Offices at

Atlanta
Chicago
Dallas
Denver

Detroit
Helena
Indianapolis

Kansas City
Milwaukee
Minneapolis

New York
Parkersburg
Pittsburgh

Salt Lake City
San Francisco
Seattle
Washington

CONCRETE FOR PERMANENCE

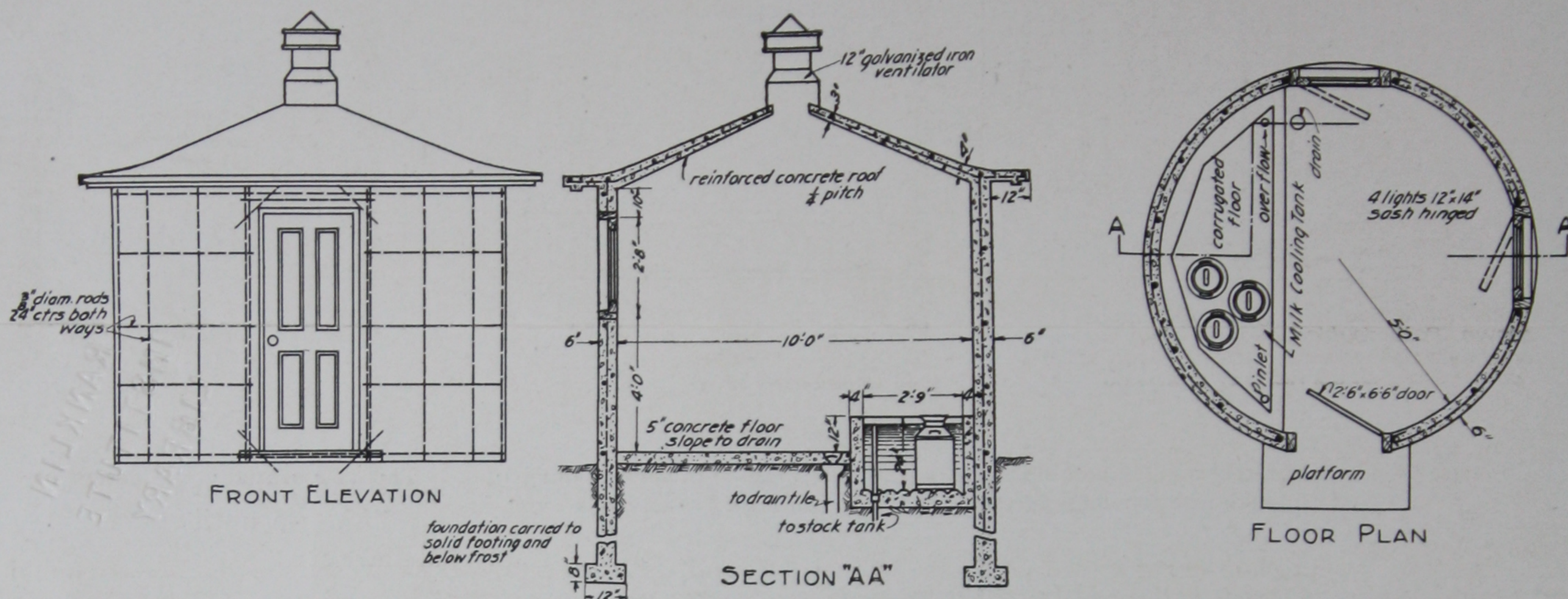
September, 1918

Suggested Plans for Concrete Milkhouses

A Separate Building for Milk Necessary

Nearly every farm would find a concrete milkhouse profitable. The dairy farm cannot afford to be without one. Clean, sweet, sanitary milk cannot be produced regularly without the best facilities for cool-

crete is non-absorbent, therefore does not take nor retain odors. Walls, floor and ceiling of a concrete milkhouse are free from cracks and ledges where dust, cobwebs or filth can collect. The surface may be washed down as frequently as necessary and sterilized

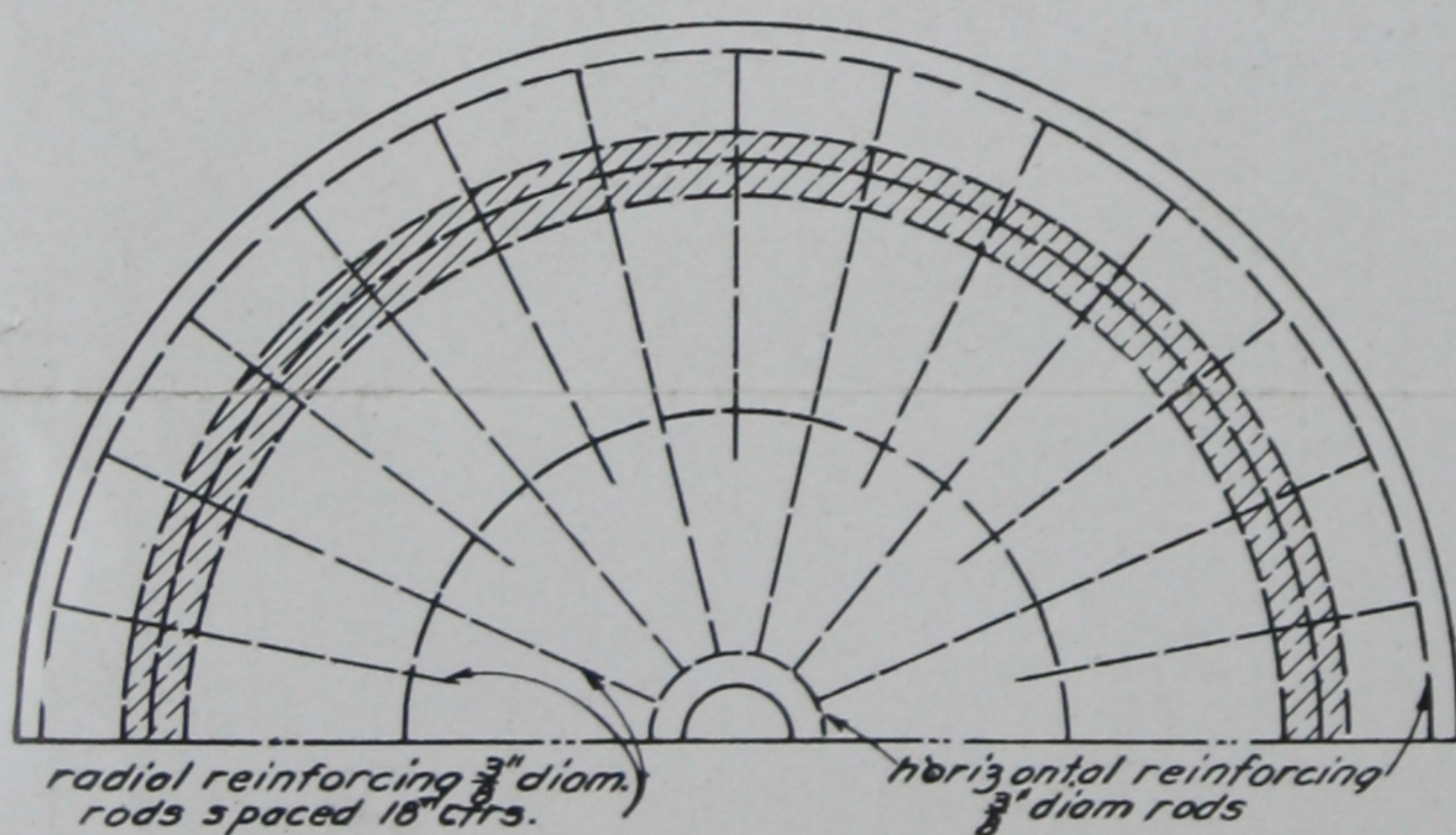


Suggested design for circular monolithic concrete milkhouse with milk cooling tank

ing the milk immediately after drawn and keeping it cool until marketed. There is a good market at good price for sweet, clean milk.

Milk is easily tainted if allowed to stand in the barn for even a short time. It absorbs disagreeable

if desired. The concrete surface is easy to clean and to keep clean; being damp-proof, the material does not hold moisture, hence will not rot. Concrete is also ratproof and fireproof. All of its qualities make for freedom from any expense for upkeep or repair.

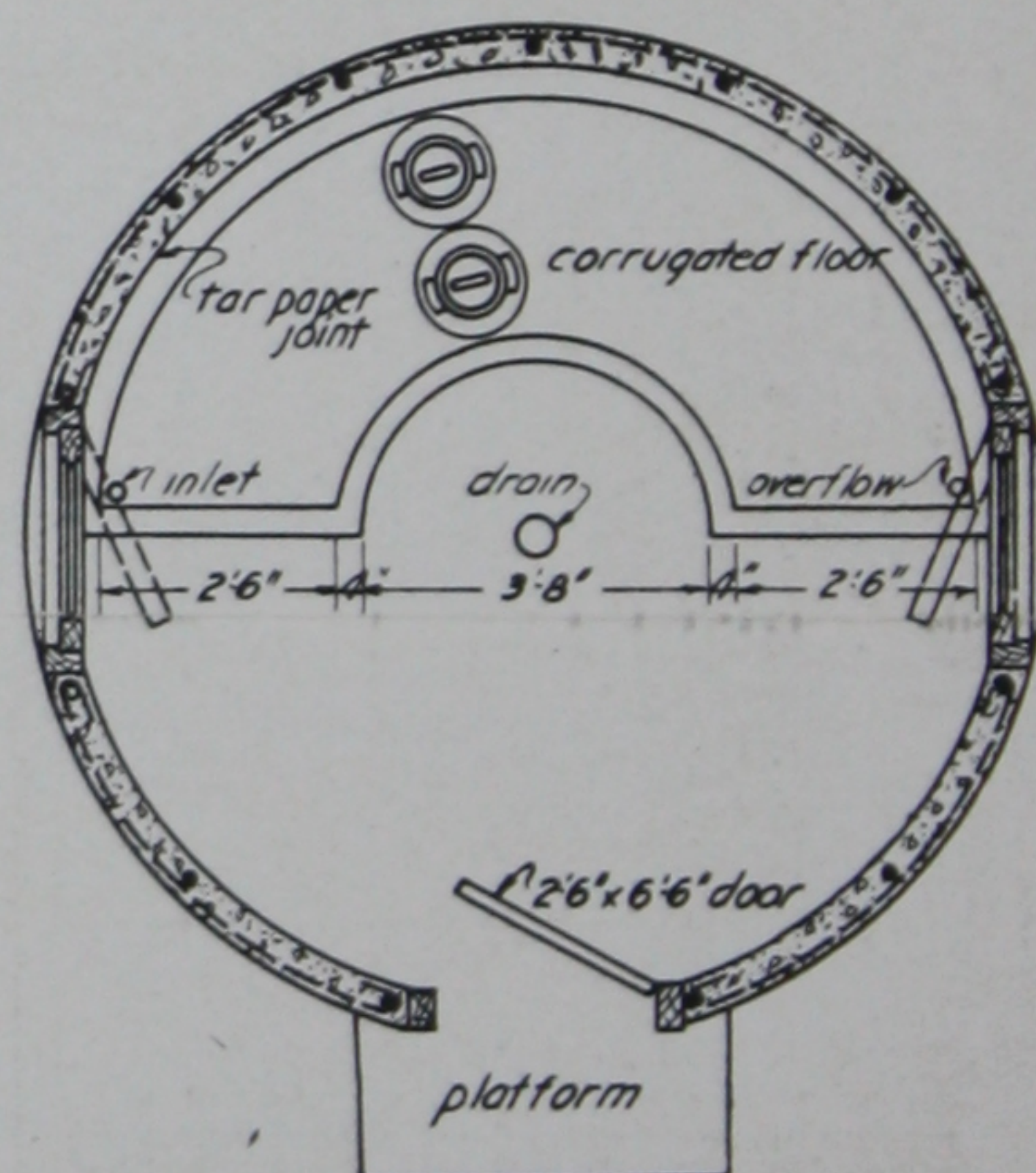


Sketch showing half roof plan of concrete milkhouse, illustrating placing and number of reinforcing rods

stable odors readily and quickly. A dairy house separate from the barn or other farm buildings is therefore required.

Why to Build a Concrete Milkhouse

Absolute cleanliness must be maintained in the milkhouse because milk is used for human food. Con-



Alternate floor plan for circular concrete milkhouse with particular reference to a different form of milk cooling tank

Where to Locate the Milkhouse

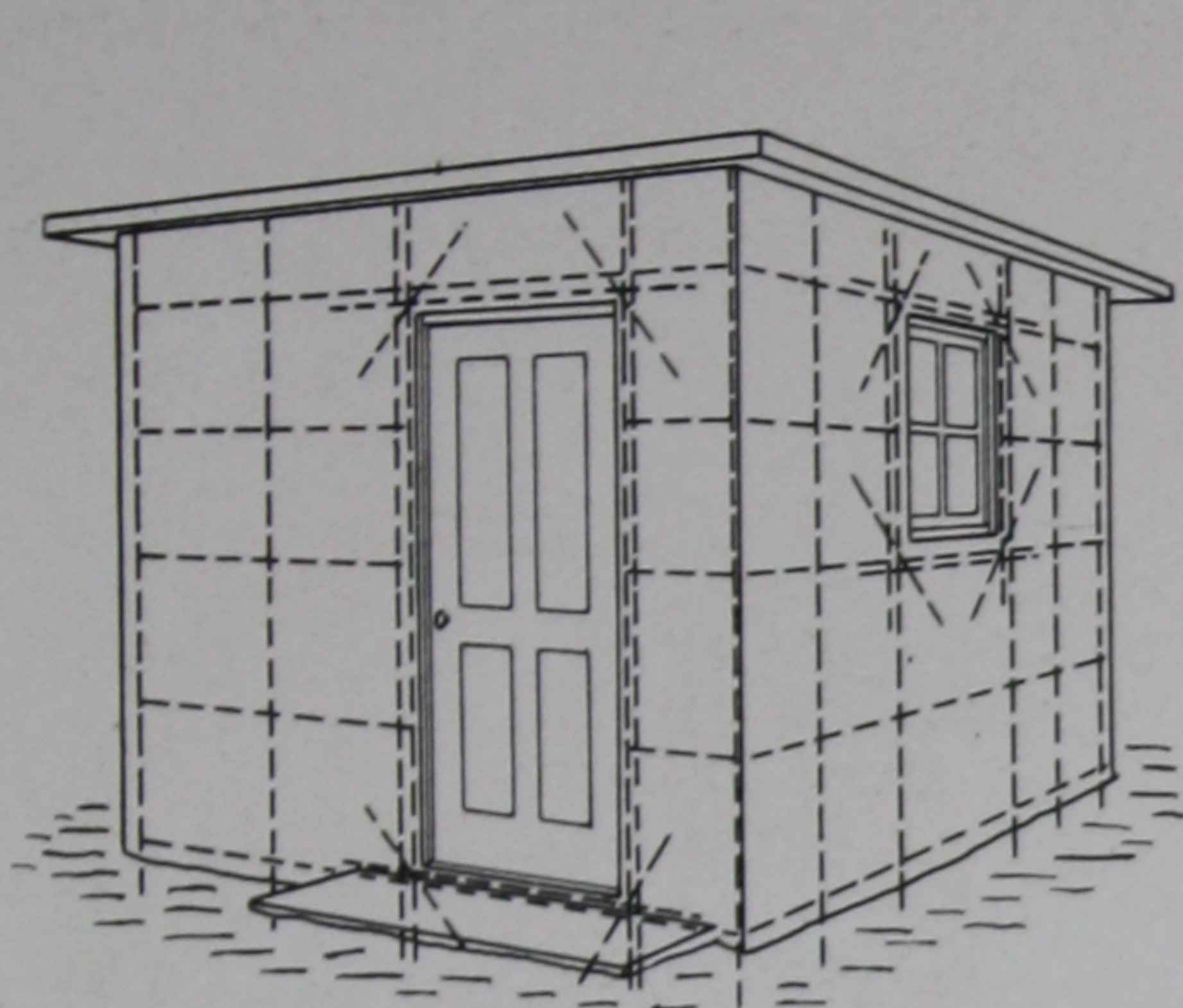
The milkhouse should be located convenient to the barn but not so near it or the barnyard as to be exposed to odors from these places. It should also be near or convenient to water supply. A location between the house and barn, yet near the well or other source of water, is preferred by most dairymen.

Types of Concrete Milkhouses

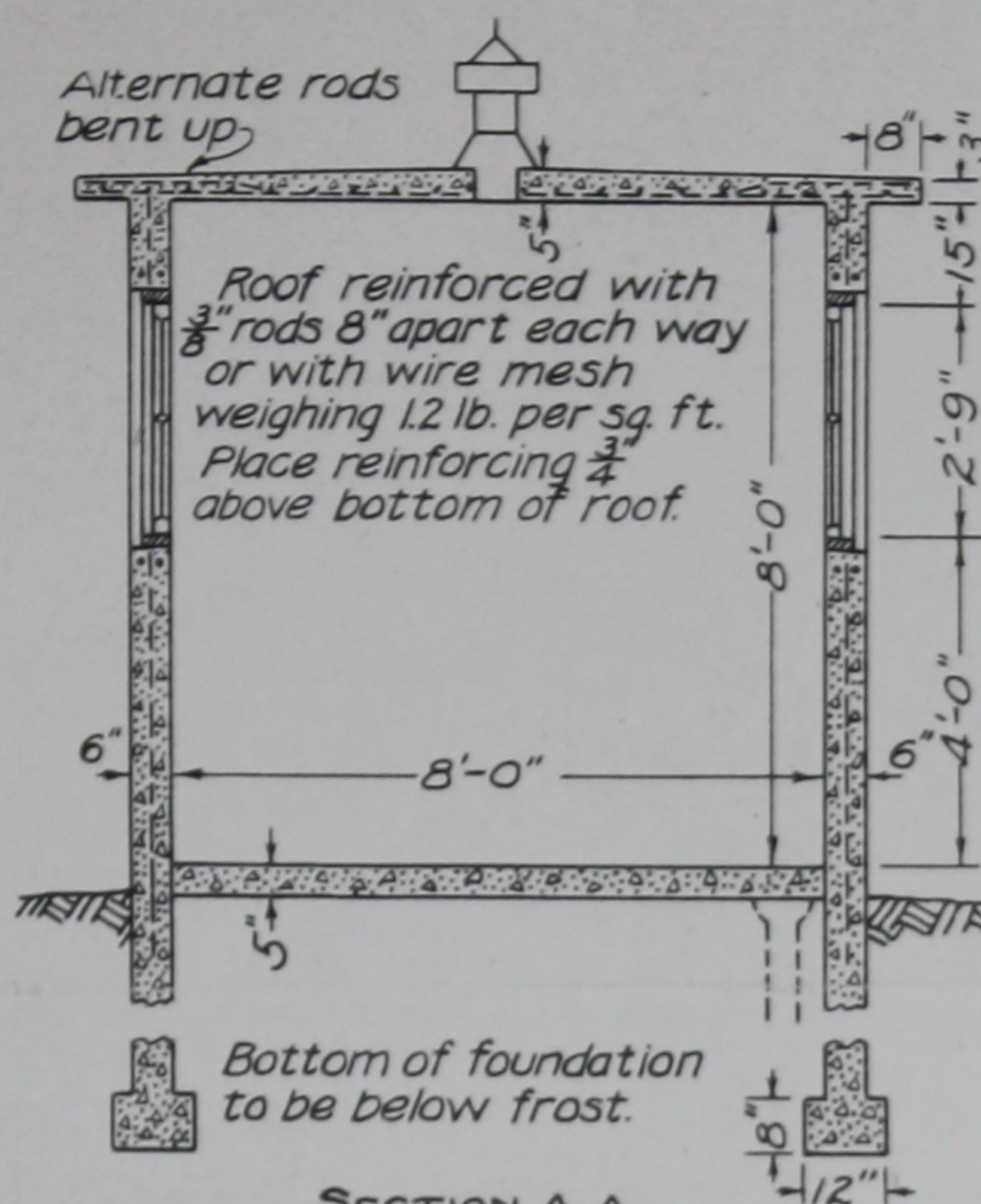
Plans reproduced in this leaflet illustrate two concrete milkhouses—one circular, the other rectangular. Round milkhouses like the one shown can readily be built by using tank or silo forms.

Milk Cooling Tank

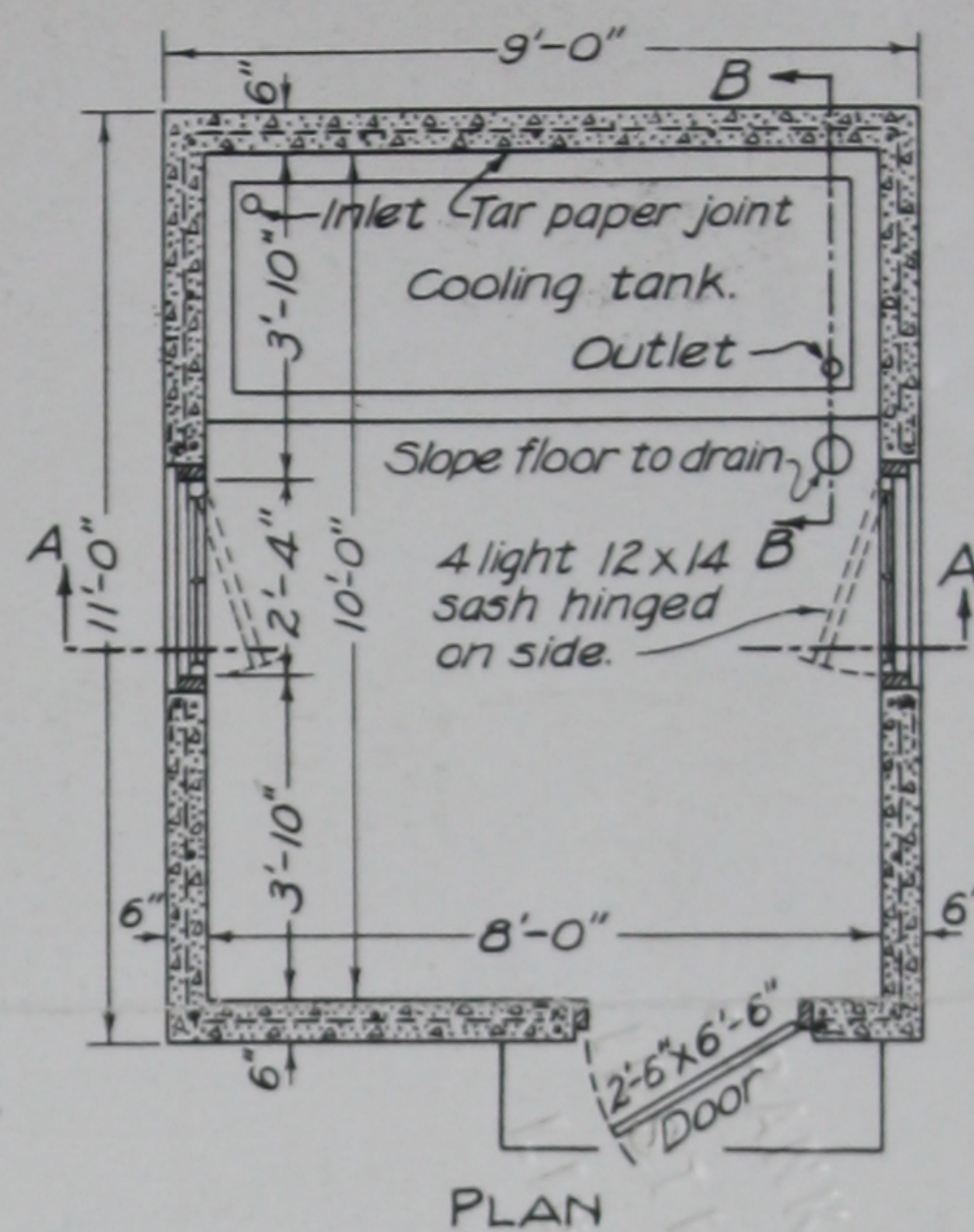
Each of the suggested plans provides for a concrete milk cooling tank. It is advisable to have the cans stand in as deep water as possible. The height of the cans will therefore govern the depth of the tank.



Wall reinforced with $\frac{3}{8}$ " round rods as shown. Rods doubled around openings and continuous around corners. Diagonal rods 2'-6" long at corners of openings.



SECTION A-A

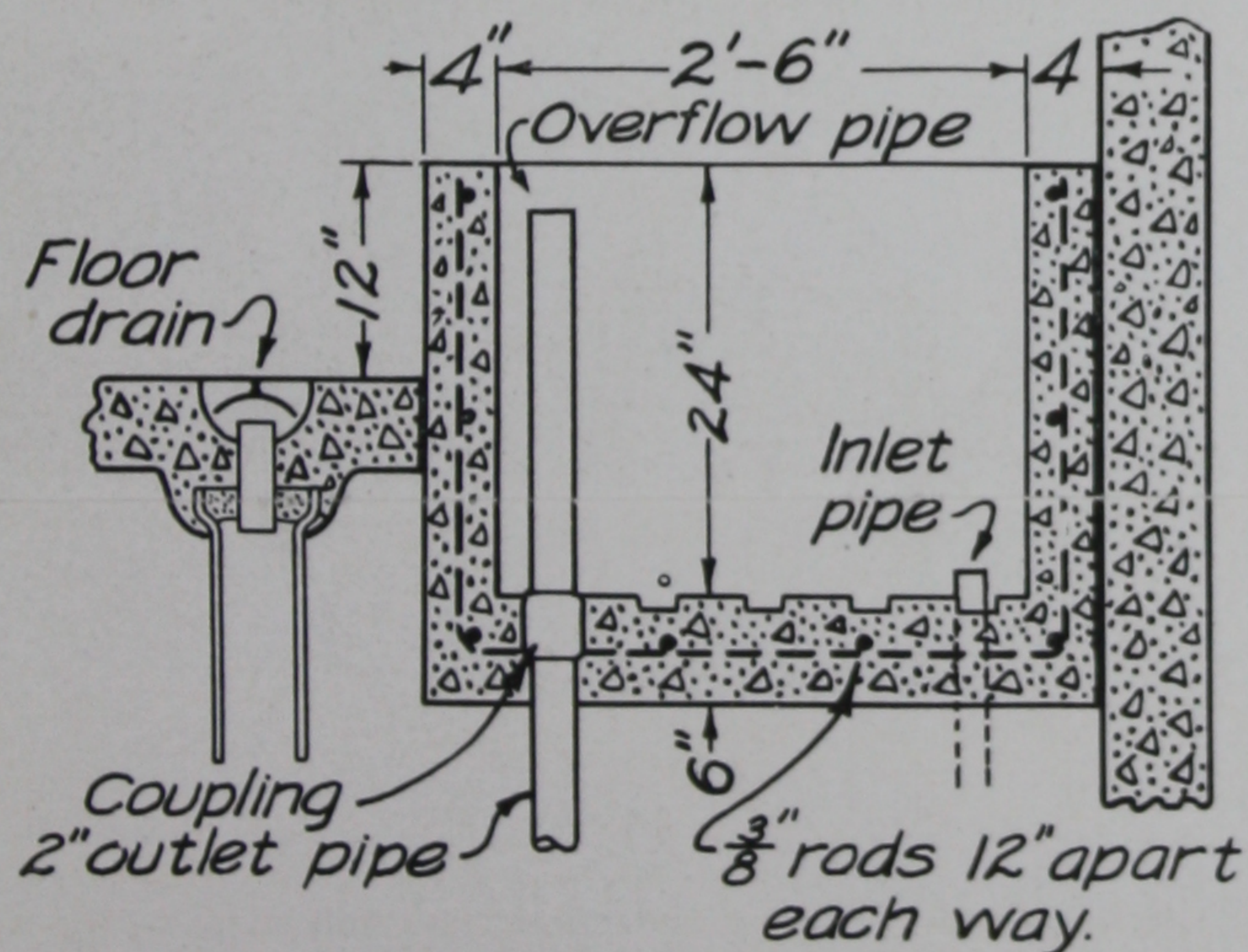


Suggested design for rectangular monolithic concrete milkhouse with milk cooling tank. This is essentially the design of milkhouse recommended by the Carnation Milk Products Co., at Richland Center, Wis.

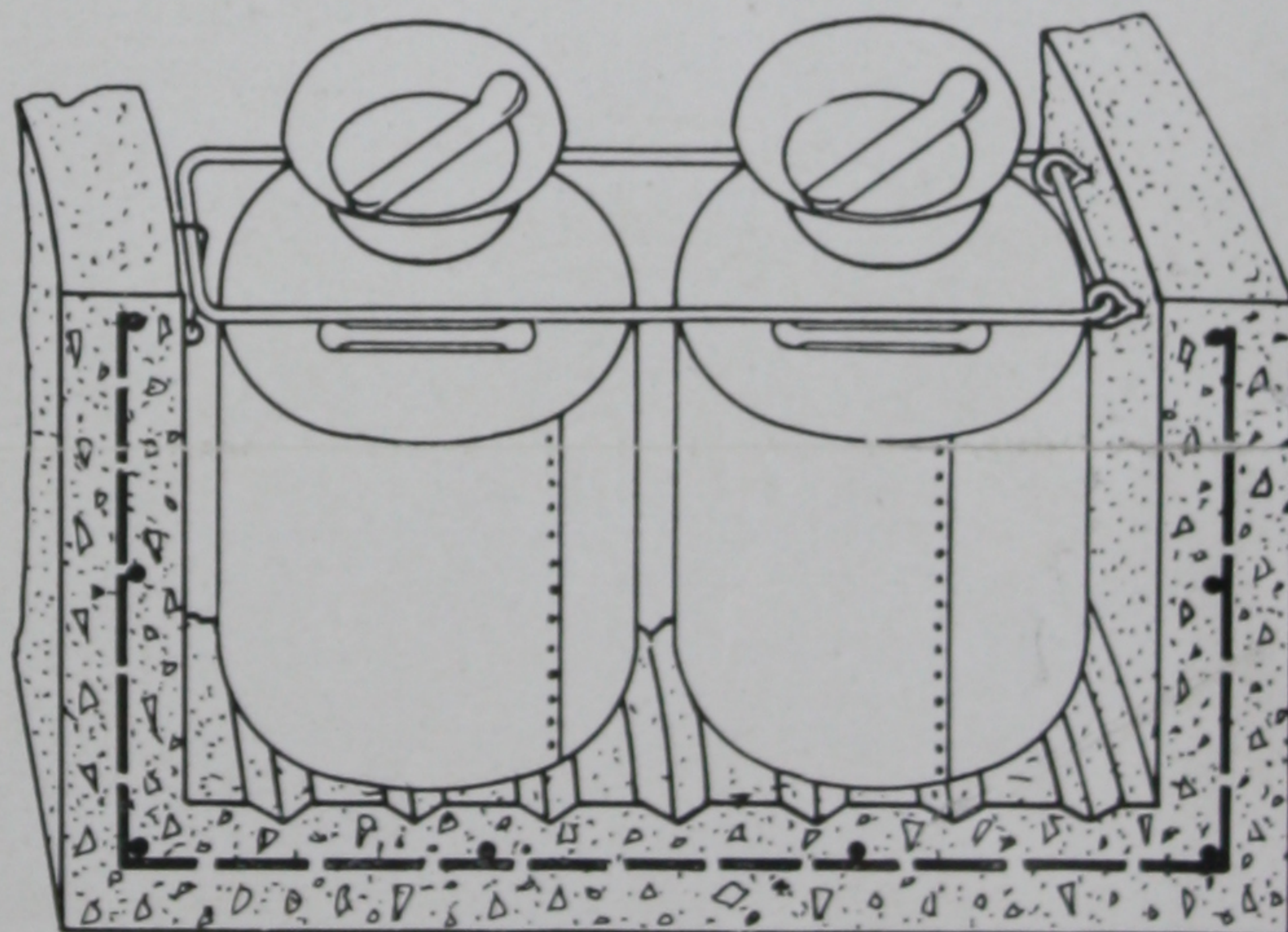
Both of the milkhouses, of which plans are shown, are small ones, purposely designed so that they will not provide enough spare room to encourage storing of farm implements or other odds and ends that would soon litter up the place and prevent it from being kept clean and sanitary.

and also the length of the overflow pipe. Water should come well up on the necks of cans. If there is not a regular supply of ice on the farm that can be used to keep tank water at the required temperature, running water from a spring will answer. Usually spring water will keep milk at a temperature of 55 degrees or slightly lower.

Water enters in the tank at one end at floor level



Section of concrete milk cooling tank showing method of locating and setting inlet and overflow pipes, and also location of floor drain



Part section of concrete milk cooling tank showing device for holding cans in the tank. The eye bolts should be placed in the wall about 21 inches from the bottom of the tank, depending upon style of can used

Rectangular milkhouses are very popular with some dairymen. The form is one which lends itself readily to concrete block as well as to monolithic concrete construction.

and leaves at the opposite end by the outlet pipe shown. This gives good circulation and regular change of water.

A number of grooves are formed in the tank floor

1D 88-B6917 TCF

so water can circulate under the cans. These grooves are made by pressing wood strips in the concrete of the floor before it has hardened. Afterwards the strips are removed.

To lighten the labor of setting cans in and remov-



Type of monolithic concrete milkhouse that the Carnation Milk Products Co., at Richland Center, Wis., is recommending its patrons build

ing them from the tank, it is built partly below floor level. For the same reason the width of the tank is limited to the diameter of two cans, or to arm's length.

A device for holding cans down in the water when they are not heavy enough to settle under their own weight and rest on the tank floor is shown in a detailed sketch. This prevents the cans from over-



Concrete construction permits the highest degree of sanitation, as is shown in this clean milkhouse interior

turning, thus keeping milk from spilling out or allowing water to run in.

Where the water supply is limited, economy of water is realized by allowing water from the overflow pipe to enter the stock watering trough or tank. This practice is not recommended, however, if farm water

supply is abundant. The floor drain of the milkhouse should never be in connection with the water tank.

The amount of materials required and the concrete mixtures to be used for each of the designs shown are as follows:

Materials Required for Rectangular Concrete Milkhouse:

Cement— $15\frac{1}{2}$ barrels.
Sand— $5\frac{2}{3}$ cubic yards.
Pebbles or broken stone—9 cubic yards.
Reinforcing steel—975 feet $\frac{3}{8}$ -inch diameter round rods.

Concrete Mixtures:

Foundation, 1:3:5.
Walls above ground, $1:2\frac{1}{2}:4$.
Roof, tank and floor, 1:2:3.

Materials Required for Circular Concrete Milkhouse:

Cement— $15\frac{1}{4}$ barrels.
Sand— $5\frac{1}{2}$ cubic yards.
Pebbles or broken stone—8 cubic yards.
Reinforcing steel—805 lineal feet $\frac{3}{8}$ -inch diameter round rods.

Concrete Mixtures:

Walls and foundation, $1:2\frac{1}{2}:4$.
Roof, floor and tank, 1:2:3.



Circular forms for building monolithic concrete silos are adapted to the construction of circular concrete milkhouses like the one shown here

Information on Concrete

For full information on proportioning, mixing and placing concrete, write for a free copy of our Booklet 140. For information on building foundations and low walls, ask for Booklet 141. If you want to know how to build concrete floors, ask for Booklet 137. Some details on building milk cooling tanks are in our Booklet 142.

Any of these will be sent free on request.

Address the

Portland Cement Association
111 West Washington Street, Chicago

